



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,046	02/26/2004	Shinichi Takeshima	118849	5174
25944	7590	01/31/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER WARTALOWICZ, PAUL A	
			ART UNIT	PAPER NUMBER
			1754	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/786,046

Applicant(s)

TAKESHIMA, SHINICHI

Examiner

Paul A. Wartalowicz

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/6/06 have been fully considered but they are not persuasive.

Applicant argues that Nawa does not disclose a microemulsion and that the particle size of a microemulsion is very fine (few nanometers to a few tens of nanometers) whereas particles in an emulsion system may measure 1 micrometer or more.

However, Nawa discloses particle sizes in the range of 1 micrometer or *less*. Therefore, the particle size cannot be used to determine whether or not a microemulsion occurs. That Nawa discloses particle sizes less than 1 micrometer encompass the range of a few nanometers to a few tens of nanometers that would be indicative of a microemulsion.

The disclosure of Nawa allows for bulk ceramics *and* fine metal compound oxide particles. The limitation of metal oxide particles having a composition uniform in the atomic level is a feature not claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., metal oxide particles having a composition uniform in the atomic level) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that a skilled artisan would not look from Nawa to Sherif in order to derive a solution because Sherif aims to solve a different problem, namely, to only generally produce metal oxide powders useful in ceramics applications and that Sherif produces different particle size, particle crystallinity, cation stoichiometry, and powder surface area and that it would not have been obvious to look from Nawa to Sherif, nor is there any suggestion or motivation to combine Nawa and Sherif to solve the problem addressed by the claim.

However, both Nawa and Sherif teach that metal powders are useful in ceramics applications. Additionally, both Nawa and Sherif use emulsions to produce metal oxides. Nawa teaches using titanium alkoxide, but fails to teach zirconium alkoxide. Sherif is only relied upon to teach that it would be obvious to use zirconium alkoxide instead of titanium alkoxide. That Sherif teaches different particle size, particle crystallinity, cation stoichiometry, and powder surface area does not affect combinability with Nawa: both patents are drawn to the process of making emulsions to produce metal oxides.

Applicant argues that because Uenishi relates to a novel gas catalyst, and does not involve or address microemulsion, claims 7-12 would not have been obvious over Uenishi as viewed from Nawa and Sherif and for the same reasons there is no suggestion or motivation to combine Nawa, Sherif, and Uenishi because they do not solve the problem or produce the same results as the claimed invention.

Art Unit: 1754

However, Uenishi is relied upon to teach that it is known to use mixed oxides of zirconium and cerium as catalysts. Because the combined teachings of Nawa and Sherif disclose a substantially similar process for making a mixed oxide, the properties of prior art product are substantially similar to those of the claimed invention. Because it is known to use mixed oxides as catalysts, one of ordinary skill would recognize that the mixed oxide of the combined prior art could be used as a catalyst for exhaust gas purification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nawa et al. (U.S. 5863850) in view of Sherif (U.S. 5023071).

Nawa et al. teach a process for making a zirconia based ceramic material (col. 1, lines 10-12) comprising the mixed oxide of cerium, titanium, and zirconium (col. 5, lines

Art Unit: 1754

63-66) wherein an aqueous solution of zirconium and cerium salts is mixed with an organic solution of an alkoxide of titanium to obtain a mixed solution (col. 6, lines 40-44) wherein the mixed solution is hydrolyzed to generate a precipitate (col. 6, lines 44-45) and then heated at a temperature of 800°C (col. 6, lines 34-36). This disclosure meets the limitation wherein a water-in-oil emulsion system or microemulsion system is used due to the explanation that mixing an organic phase with an aqueous phase will necessarily result in a water-in-oil type emulsion or microemulsion. As to the limitation wherein the size of the aqueous phase of the water-in-oil type microemulsion is in the range of 2-40 nm, Nawa et al. teach the process limitations of the claimed invention such that Nawa et al. inherently teach wherein the size of the aqueous phase of the water-in-oil type emulsion is in the range of 2-40 nm.

Nawa fails to teach the aqueous phase emulsified in the organic phase with a surfactant. Nawa et al. also fail to teach wherein said organic phase having dissolved therein a zirconium alkoxide, wherein conducting said organic phase with said aqueous phase to produce a product of zirconium hydroxide by hydrolysis reaction of the zirconium alkoxide at their interface between said organic and aqueous phases while incorporating the zirconium element in the product.

Sherif, however, teaches a process for the formation of metal oxides from corresponding metal alkoxide by a hydrolysis reaction (col. 1, lines 9-11) wherein a surfactant is added to a solution comprising metal alkoxide for the purpose of forming an emulsion (Throughout document, particularly col. 2, lines 15-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide adding a surfactant to a solution comprising metal alkoxide for the purpose of forming an emulsion (Throughout document, particularly col. 2, lines 15-20) in a substantially similar process of forming metal oxides from corresponding metal alkoxide by a hydrolysis reaction (col. 1, lines 9-11) as taught by Sherif.

Additionally, Sherif teaches a process for the formation of metal oxides from corresponding metal alkoxide by a hydrolysis reaction (col. 1, lines 9-11) wherein the process of initiating the hydrolysis of an alkoxide to form a metal oxide is applicable to alkoxides of titanium or zirconium (col. 1, lines 60-65) for the purpose of forming metal oxide powders having better flow and density (col. 1, lines 55-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein the process of initiating the hydrolysis of an alkoxide to form a metal oxide is applicable to alkoxides of titanium or zirconium (col. 1, lines 60-65) for the purpose of forming metal oxide powders having better flow and density (col. 1, lines 55-58) such that zirconium alkoxide is substituted for titanium alkoxide as taught by Sherif.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nawa et al. (U.S. 5863850) in view of Sherif (U.S. 5023071) and Uenishi et al. (U.S. 20020061816).

Nawa et al. teach a process for making a zirconia based ceramic material as described above in claim 1. The combined teachings of Nawa et al. and Sherif meet the

Art Unit: 1754

claimed limitation wherein a process for production of an exhaust gas purification catalyst carrier by a production process such that characteristics of the product are inherently taught because the limitations of the process of making are disclosed. If Nawa et al. fail to teach wherein a process for production of an exhaust gas purification catalyst carrier by a production process, Uenishi et al., however, teach a process for purifying exhaust (paragraph 0004, lines 1-5) wherein a mixed oxide comprising zirconium and cerium are used as catalysts (paragraph 0008, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein a mixed oxide comprising zirconium and cerium are used as catalysts (paragraph 0008, lines 1-5) as taught by Uenishi et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

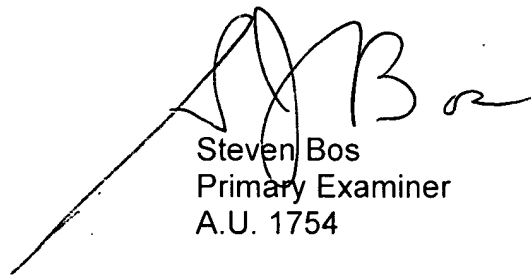
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1754

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz
January 23, 2007



Steven Bos
Primary Examiner
A.U. 1754